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Jones, Aled; Powell, Tom; Vougioukalou, Sofia; Lynch, Mary; Kelly, Daniel

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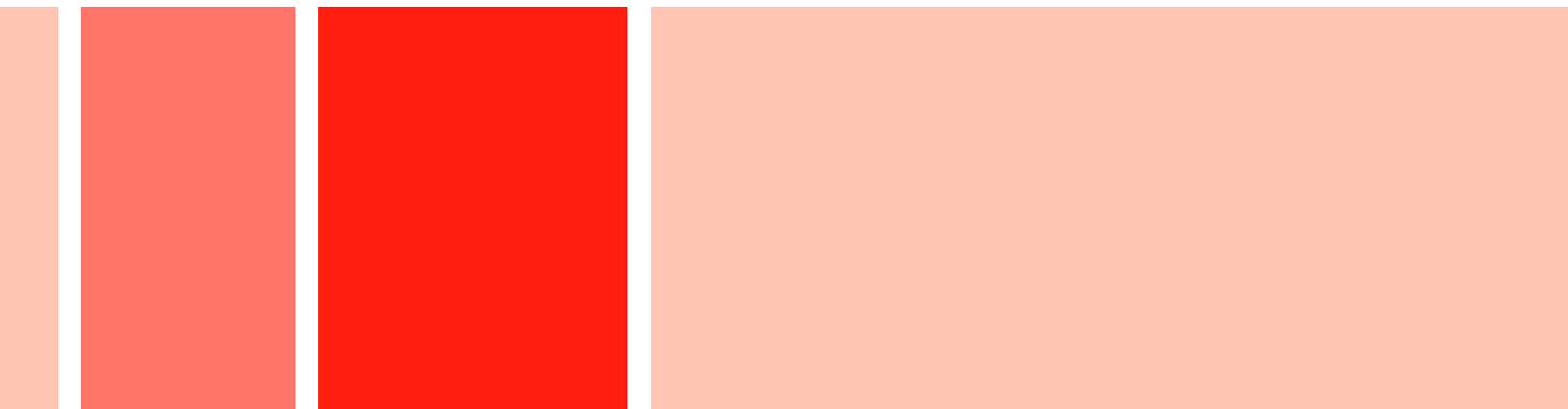
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Research into nurse staffing levels in Wales

Summary report



RESEARCH INTO NURSE STAFFING LEVELS IN WALES

Dr Aled Jones, Dr Tom Powell, Dr Sofia Vougioukalou, Dr Mary Lynch & Professor Daniel Kelly



For further information please contact:

Chris Roberts

Knowledge and Analytical Services

Welsh Government

Cathays Park

Cardiff

CF10 3NQ

Tel: 029 2082 6543

Email: chris.roberts@wales.gsi.gov.uk

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EXECUTIVE SUMMARY

In line with the project brief this report falls into two sections, namely: a critical examination of the evidence base associated with setting and monitoring safe nurse staffing levels followed by the presentation and analysis of findings related to developing a better understanding of the availability and accessibility of nurse staffing data in medical and surgical hospital wards in Wales. A summary of both of these sections is provided here with key points highlighted using italics and in bold within the main body of the report. Recommendations for practice and research emerging from these two sections are included within the executive summary, in addition to being presented at the end of the report.

Many of the project findings and recommendations fall into the theme of “Sensitivity to operations”; a term used by high reliability theorists to describe a workplace culture that permits early identification of problems so that actions can be taken before they threaten patient safety. Organisations and teams that exhibit sensitivity to operations deploy resources and have measurement systems in place that enable people to see what is happening and understand its significance and potential impact (Vincent, Burnett, & Carthey, 2014). The report attempts to move beyond a rather stagnant debate that only focuses on nurse staffing numbers or ratios towards a broader consideration of how hospitals and their largest workforce can improve care that patients receive.

1. To summarize the strengths and limitations of the evidence base associated with different approaches to setting and monitoring staffing levels.

The mandating of nurse-to-patient staffing ratios is a globally topical and contentious issue for healthcare organizations systems seeking to protect and enhance the quality of care, whilst facing increasing demand and the call for cost-effectiveness. In Wales this is also the case. What might be considered safe staffing levels is far from being a neutral issue, however, as professional, political, financial and moral agendas coalesce around the question of how many nurses are needed to provide safe, effective and humane health care.

The available published evidence on this topic was considered in some depth and, whilst increasing attention is undoubtedly being paid to the issue of safe nurse staffing, the nature of the research that has been (and can be) conducted fails to provide definitive “cause-effect” conclusions. In traditional measures of research, the randomised controlled trial (RCT) is favoured. In the topic of nurse staffing such an approach has not been possible, meaning that studies typically employ approaches that some may consider to be inferior in an attempt to better understand the association between nurse staffing and patient safety. Despite the lack of a ‘magic bullet’ study - to support or reject the case of minimum nursing ratios this does not mean that the available research should be discounted.

The conclusion we draw is that the available national and international sources of evidence can help inform the debate, whilst acknowledging its limitations and recognising its strengths and the lessons that can undoubtedly be applied to nursing in NHS Wales.

The lack of causal relationship between nurse staffing levels and patient safety outcomes often leads to the argument that there is insufficient evidence for the introduction of mandatory ratios or levels of staffing. However, the weight of evidence that suggest a positive association between higher levels of registered nurses working on wards and patient outcomes suggests that this argument could be turned on its head and that mandatory staffing ratios and levels should be introduced unless and until a causal relationship has been disproved.

Nevertheless, efforts to mandate staffing standards in other countries, such as the USA, through legislation have typically ended in contentious standoffs between nurses’ unions and hospitals, tying the hands of legislators due to the varied agendas and the inability of nurses, hospital administrators and financial experts to move toward a single purpose. As a result methods for mandating nurse staffing in the USA through “Nurse Staffing Plans” appear to be moving away from legislation that introduces ‘top-down’, rigid nurse-to-patient ratios towards legislation that incorporates a more ‘bottom-up’ approach which incorporates nurses’ and other professions’ input to nurse staffing committees and, importantly, that draw directly on nurses’ expertise and experiences to demonstrate the impact on nurse-sensitive patient outcomes. The Chief Nursing Officer for Wales staffing

principles appears to us to be a positive step in a similar direction, although in need of detailed evaluation.

We draw attention to the emergence out of conflict of consensus-based approaches to setting and monitoring staffing levels that involves nurses directly in agreeing a process to which they can contribute. This may reduce some of the ‘heat’ that currently surrounds the nurse staffing ratio debate which may be seen to provide more political, rather than practical, value at the present time for NHS Wales.

RECOMMENDATIONS FOR PRACTICE: Evolve the CNO’s staffing principles along the lines of recent and promising innovations in nurse staffing methodologies in the USA, such as the Nurse Staffing Committees and Nurse Staffing Plans discussed in the evidence review. These move away from merely focusing on ward staffing in terms of numbers in isolation by embracing a more multi-disciplinary approach to staffing that empowers frontline nurses to participate in decision making about staffing levels and skill mix.

However, concern remains that if something as key as patient mortality is not reduced by increased nurse staffing then it must be something that the nurses do, that reduces mortality, leading some to conclude that determining what this is and how it can best be facilitated should be the goal of an effective patient safety strategy (and future research).

RECOMMENDATION FOR RESEARCH: More in-depth, rigorous qualitative studies of nurse staffing, ward staffing more generally and the availability of other resource such as equipment. A much richer, three dimensional sense of the world of nursing and healthcare work in NHS Wales can be achieved by asking the “why” and the “how”, not just the “how many”.

The dearth of robust health economics research into nurse staffing from the UK and internationally is also a significant gap in the literature, the absence of which further restricts a deeper understanding of the nurse staffing debate.

RECOMMENDATIONS FOR RESEARCH: Robust health economics analysis should, where relevant, feature routinely in the design of research studies into nurse staffing.

Importantly, the recent NICE indicators of nurse staffing ratios reflect the critique that the nurse/patient ratio effect on clinical outcomes - such as infections and mortality - are difficult to attribute to one professional group in isolation. Non-nursing healthcare professions have also expressed opinions; namely that legislating for minimum nurse staffing numbers could serve to reduce the numbers of Allied Health Professional posts, for example physiotherapy or occupational therapy. The effect of nurse staffing on patient outcomes is further complicated by other co-existing contextual factors such as vacancy rates, the quantity and quality of the environment or medical equipment or the extent to which professional development of staff is supported.

RECOMMENDATION FOR PRACTICE: The evidence review suggests that patient safety does not lie solely with the nursing workforce, but is also dependent on the support staff receive from organisations and the presence of other professionals and ancillary worker who provide critically important services. More regular, detailed and open publication of nurse staffing and broader NHS workforce data by NHS Wales is recommended by making better and fuller use of ESR-DW.

Another key challenge which researchers must face is the *inconsistencies in how variables were defined* and measured because researchers generally did not have flexibility to determine *what* is actually being measured. For example, although nurse staffing was often measured either as a nurse-to-patient ratio, the number of hours of nursing care provided during a defined time period, or a proportion of staff that consisted of registered nurses (skill mix) authors have *described up to 82 different measurements of nurse staffing* within these broad categories.

Researchers acknowledge that nursing work and patient outcomes co-exist with other factors within a complex system. However, researchers do not always confront this with studies continuing to be underdeveloped in terms of the absence of subtlety in methodological design to better understand such complexities.

RESEARCH RECOMMENDATION: Specifically in relation to this report a follow-up study is needed to revisit the data and work closely with LHBs, hospitals and individual wards to better inform a more complex understanding of some of the notable anomalies and points of curiosity within the data set such as the use of “flex” or “surge” beds and the inclusion of ward managers in ward staffing numbers.

The intended effect of introducing mandatory nurse staffing levels is obviously to improve patient safety outcomes, as well as a secondary gain in improving staff satisfaction. However, the literature suggests that mandatory staffing levels could result in more demand for nursing hours. Allied to a shortfall in nursing supply in some areas, poor rostering practices and inadequate workforce planning identified in inquiries into care failings such as the Keogh and Andrews Reports and large scale surveys of nursing staff, there exists a possibility that mandating such levels may well lead to unintended consequences, with existing nurses working longer hours to cover the expected increase in demand.

Thus what is intended to be a positive measure could become another problem in the making if adequate workforce and human resource planning in terms of recruitment and retention of nurses at a local and national level in Wales is not strategically addressed at the same time.

RESEARCH RECOMMENDATION: Further exploration is needed to better understand the effects of enhanced or reduced staffing levels on broader workforce factors such as staff wellbeing, staff retention and intention to leave. Opportunities exist here to bring together “big data” quantitative approaches and qualitative approaches that address questions related to these issues and safety outcomes.

2. To establish current and historical data that are available on nurse staffing levels in acute adult wards across Local Health Boards in Wales:

All staffing data originates within individual Welsh NHS Local Health Boards (LHB) and Trusts. *One key finding is that there is a worrying variety in terms of attempts at comparability and consistency of systems, processes and software packages used to capture and hold staffing information at the organizational level which have evolved locally, rather*

than nationally, to meet key operational needs - for example, Human Resources (HR), payroll, and workforce planning. Furthermore, little or no information on ward level nurse staffing is routinely published in a publicly available format.

The only way to access nurse staffing data at a ward level is via ad-hoc requests made directly to individual LHBs. This was the approach taken for this phase of the project. Within a limited timescale, but with researchers devoting considerable time to the project, it was possible to collect a large amount of data via this approach; namely staffing data from 181 individual medical and surgical ward areas from six LHBs. However, it is not clear how sustainable this approach to data collection would be on a more regular basis.

Under the current system of nurse staffing data management in Wales the *complexity and fidelity* of the staffing data accessible from outside the LHBs is progressively *reduced* to the point where nurse staffing data is available as annual figures produced by broad staffing groups, including grade and area of work at an organisational level.

RECOMMENDATION FOR PRACTICE: In line with Welsh Government's commitment to transparency and improved access to NHS information we recommend monthly reporting of detailed, accurate and robust ward level nurse staffing data across NHS Wales that is publically available. This recommendation will also bring NHS Wales in line with recent improvements in nurse staffing reporting elsewhere in the UK.

In addition, it was not possible to see staff by individual hospital or ward and no staffing data appear to be triangulated with patient safety outcomes or other related quality outcome metrics such as patient length of stay.

RECOMMENDATION FOR PRACTICE: The analogy of nurse staffing data as a “smoke alarm” is useful as it may provide an early indicator of patient safety problems. However, nurse staffing data are currently held and used as separate information sources by, for example, finance, human resources and nursing staff. These data sources should be linked and combined with “real time” ward information to form a “nurse staffing safety dashboard”. Such a dashboard would prove a valuable resource from “hospital wards to boards” to anticipate and prepare for problems in a way that our experiences of data collection and analysis suggests is not the case at present (for example section 3.75).

Therefore proposals to legislate and monitor “safe nurse staffing” ratios or skill-mix appear premature given the current absence of a robust, centralised and linked data system for the accurate recording and reporting of nurse staffing and patient outcomes. Investment in data accuracy capture and analysis systems – as well as a review of data management infrastructure - should come before any attempt to mandate nurse staffing ratios. Focusing on infrastructure support to enable detailed and frequent analysis and report production may, in turn, indicate a specific need for future development and growth to support workforce intelligence for NHS Wales and Welsh Government.

Our data collection with LHBs revealed a variety of different definitions were in operation both within and across LHBs in Wales. One such example relates to the term “establishment” and “ward level establishment”. The usefulness of a number of these definitions for making clinical decisions about safe nurse staffing on wards appears questionable as they seem to obfuscate rather than provide clarity for both researchers and those working closely in the NHS on the issue of nurse staffing.

This finding, whilst apparently fairly minor, reinforces the need for clarity and robustness when workforce data such as these are being collected. If minimum nurse staffing levels were introduced, and were then being monitored, this need would become even more important.

Data from a total of 181 individual acute medical and surgical ward areas when combined helped to produce a detailed picture of nurse staffing in Wales. Although we do not claim this to be an exhaustive data set of all medical and surgical wards in Wales we do believe this to be the largest collection of NHS Wales ward level nursing data in existence. *This indicates that a significant volume of nurse staffing data can be gathered in a fairly short time by researchers asking the right questions of the right people and that research into other areas of nursing practice is required.*

The number of beds present on each ward is an example of the nature of information requested. However, information such as bed numbers proved useful only to a point that led to more questions than answers being raised. For example, bed numbers demonstrated was that there was a considerable range with the largest ward being 5 times the size of the smallest (8 to 40 beds). The structure of the ward, such as bay size, whether there were

individual rooms, and so on, was not requested but are important factors that should be taken into account in future work; and especially when considering nurse to patient ratios and skill-mix. Bed numbers alone tell an incomplete story.

Our findings also provide an interesting insight into different shift patterns found at ward level. All the ward areas included in the report operated on a 24-hour basis. However, the way in which shift patterns are organised unsurprisingly varies across Wales, with combinations of early/mid/late shifts and short/long shifts for example. Furthermore, discussions with senior nurses revealed that nurses would sometimes work shifts of three to five hours in duration, to cover the busiest time of the day. It appears that regardless of whether there is a staffing shortage on a particular shift or not, some wards revealed “*local agreements*” regarding Ward Sister/Charge Nurses being counted in the complete numbers, albeit only for some of the working week. *This raises a key issue about the adherence to the Chief Nursing Officer for Wales (CNO) staffing principles and to ratios more generally. The question might be asked whether a 1:7 Registered Nurse (RN)-to-patient ratio is likely to be consistently met throughout the day.*

RESEARCH RECOMMENDATION: More studies are needed on the relationship between nurse staffing levels, patient outcomes and patient acuity during times of the day, week and year.

Regardless of Welsh Government investment in nurse staffing and training places our data suggests that some wards routinely have lower numbers of nurses per shift than is desirable (for example section 3.78). However, medium to long term workforce planning in terms of LHBs in Wales tracking existing nurses’ intention to leave, age profiles or forecasting expected numbers of newly graduating nurses joining the workforce appears to be mostly absent.

RESEARCH RECOMMENDATION: Enhancing data accuracy methods about the “churn rate” (a measure of the number of individuals moving out of a collective group over a specific period of time) of students and nurses and use of temporary staffing would help ensure greater political and public confidence that workforce investment strategies are increasing numbers of current numbers rather than merely replacing nursing staff that have left the NHS, or about to.

Numbers for agency and bank staffing were combined in the data request template so it was not possible to represent differences between these two types of staff. However on the census day (10th December 2014), 63 ward areas had temporary RNs, 89 ward areas had temporary HCSWs and 40 ward areas had both. Furthermore 136 ward areas had RNs vacancies and 73 had HCSW vacancies suggesting that even though there was a large use of temporary staff the need may be even greater. Annual temporary nurse staffing costs were reported by ward areas, totaling £13.5 million for bank and £5.5 million for agency staff.

RESEARCH RECOMMENDATION: Studies to better understand marked variation in temporary staffing usage on wards that are similarly staffed and face similar demands such as unfilled vacancy, patient acuity and turnover.

A further research recommendation related to temporary staffing suggests the need for:

RESEARCH RECOMMENDATION: Studies that better understand the motivation of nurses to work as temporary staff members and their experiences of temporary working. These can feed into strategies that may result in converting temporary staff to permanent staff whilst also better understanding how to get the best out of temporary staff who work for the NHS.

In summary the study met its brief by examining the available evidence base, reviewing its strengths and weaknesses, establishing the availability of data on nurse staffing levels and drawing conclusions about the quality and availability of these data. More in-depth discussion of the above will now be presented before concluding with recommendations.